

rotation of the platen, and wherein a second portion of the grooves are oriented to flow slurry outwardly from a central region to the interior region at the interface between the polishing pad and the rotatable platen for the given direction of rotation of the platen.

REMARKS

This is intended as a full and complete response to the Final Office Action dated October 23, 2002, having a shortened statutory period for response set to expire on December 23, 2002. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-37 remain pending following entry of this response. New claim 37 has been added to recite aspects of the invention. Applicants submit that the new claim does not introduce new matter and does not constitute matter requiring another search.

Claims 1, 4, 5, 6, 8, 9, 11, 14, 15, 16, 18, 19, 20, 26, 27 and 32-36 stand rejected under 35 U.S.C. § 102(a) as being anticipated by *Elliott et al.*, U.S. 5,690,540 (hereinafter *Elliott*). Applicant respectfully traverses the rejection.

The Examiner states that *Elliott* discloses a semiconductor polishing device with one surface defining at least one non-intersecting fluid retaining groove, at least a portion of which is oriented at an angle relative to a radial line originating at its center, is adapted to flow a fluid inwardly toward a center portion of its surface, and is adapted to be used with a rotary polisher. The Applicants respectfully traverse the rejection.

All of the Applicants' arguments of its previous response are incorporated herein by reference. As was mentioned previously by the Applicant, the grooves of *Elliot* are intersecting. However, in his Final Office Action the Examiner states that the grooves of *Elliot* are non-intersecting. While the Examiner and the Applicants agree that the grooves of *Elliot* originate at a center 66, the Examiner suggests that the center 66 is not an intersection. Respectfully, Applicants submit that such a conclusion requires an interpretation of the term "intersecting" which is contrary to its ordinary meaning. *Websters Collegiate Dictionary* defines "intersect" as (1) to meet and cross at a point; and (2) to share a common area. By way of illustration, the common point at which two

roads meet is referred to as a "four-way intersection". Therefore, the grooves of Elliott intersect one another at the center 66.

The Examiner further states, however, that non-intersecting grooves are well-known and that a number of relevant references have been cited. Applicants respectfully request that the references in support of the Examiner's statement be specifically pointed out so that the best available art can be considered and addressed by the Applicants.

Claims 3 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Elliott et al.* The Examiner correctly states that *Elliott* does not disclose a groove having a varying slope. However, the Examiner states that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the pad of *Elliott* to change the depth of the groove to increase or decrease to flow rate, hence the quantity, of the slurry. The Applicants respectfully traverse the rejection.

As noted previously by the Applicants, *Elliott* provides definitive groove configuration limitations. In particular, Elliott discusses the effects of groove depth, width and pitch. (See, column 4, lines 20-31.) In the case of depth, the grooves disclosed in *Elliott* are substantially uniformly deep along their lengths. (See, Figure 2.) *Elliott* suggests that the depth of a groove may be selected according to a desired flow slurry rate. However, because the groove configuration of *Elliott* is limited to providing slurry to a center of a polishing pad, *Elliott* does not contemplate varying a groove depth along its length. Therefore, *Elliott* does not teach, show or suggest a groove with a varying depth. For these reasons, a person skilled in the art would not be motivated by *Elliott* to use a groove with a varying depth.

In response to the foregoing argument, the Examiner states that *Elliott* teaches that optimizing the specific configuration of the groove will depend upon experimental results. However, because groove slope is not taught, shown or suggested by *Elliott* as a parameter capable of being manipulated, it follows that it cannot be "optimized". Respectfully, the Examiner's interpretation of *Elliott*'s statement gives such broad scope to self-serving language as to foreclose innovation in the face of even the most substance-less disclosure.

Claims 2, 12, 13, 23, 24, 28, 30 and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Elliott* in view of *Beardsley et al.*, U.S. 6,299,515 (hereinafter *Beardsley*). The Applicants respectfully traverse the rejection.

For the reasons discussed above, the rejection is obviated based on *Elliott* alone. *Beardsley* is directed to a patterned platen for transporting slurry. Thus, *Elliott* is exclusively directed to grooves in a polishing surface of a pad and *Beardsley* is exclusively directed to grooves in a platen. Further, *Beardsley* delivers slurry from the platen through the pad and onto the polishing surface of the pad. In contrast, *Elliott* delivers slurry directly onto the polishing surface of the pad. As a result, the slurry dispenser of *Beardsley* is suited only for slurry delivery to a platen and the slurry dispenser of *Elliott* is suited only for slurry delivery to a pad. Therefore, a person skilled in the art would not be motivated to combine *Elliott* with *Beardsley* because any effort to do so would result in an inoperative device due to the incompatibility of slurry delivery devices. Therefore, the rejection is improper. M.P.E.P. §2143.01.

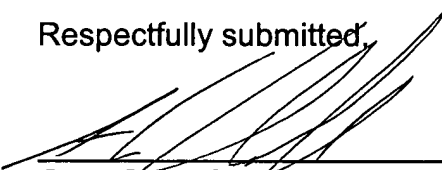
Claims 7, 10, 21, 22, 25 and 29 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Elliott et al.* in view of *Beardsley et al.* and further in view of *Okamura et al.*, U.S. 6,332,830 (hereinafter *Okamura*).

For the reasons discussed above, the rejection is obviated based on *Elliott* and *Beardsley* alone or in combination. *Okamura* is directed to a polishing apparatus including a turn table (2) disposed on a patterned surface of a turntable receiving member (3a). The grooves are not formed between a pad and platen, but between a turn table (2) and a turntable receiving member (3a). Further, the structure of the grooves accommodates the distribution of contact pressure, but does not allow for transfer of slurry to a desired region of the pad. Therefore, *Okamura* has no relevance to the pending claims and does not teach, show or suggest fluid-retaining grooves to transfer fluid to a desired region of a pad during polishing of a substrate.

In conclusion, the references cited by the Examiner, neither alone nor in combination, teach, show, or suggest the method or apparatus of the present invention. Having addressed all issues set out in the office action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

The prior art made of record is noted. However, it is believed that the secondary references are no more pertinent to the Applicants' disclosure than the primary references cited in the office action. Therefore, it is believed that a detailed discussion of the secondary references is not deemed necessary for a full and complete response to this office action. Accordingly, allowance of the claims is respectfully requested.

Respectfully submitted,



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